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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,182

Applicant(s)

NISHIDA ET AL.

Examiner

Irina Krylova

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The non-statutory obvious-type double patenting rejections over copending applications 11/632,604 and 11/667,633 are withdrawn in light of Applicant's Terminal Disclaimer filed by Applicant on 03/19/2009. The inventive entity in the present application is different from those in the above-cited copending applications, advisory information relating to the requirement for submission of common ownership statements (in order to preclude a rejection over the copending applications qualifying under 102(f) or (g)) is set forth below. The delay in setting forth this information is regretted. However, the action is being made non-final to give Applicant the opportunity for responding appropriately.

2. Claims 1-7, 9-18 are directed to an invention not patentably distinct from claims 1-5, 8-14 of copending Application No.11/632,604 ('604). Specifically, the shrinkable acrylic fiber of the copending application '604 is a species of the instantly claimed genus, and species anticipates a genus. Both the copending application '604 and the instant application specify the polymers as being incompatible.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). The copending Application No.11/632,604, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this

application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

3. Claims 1-7, 9-18 are directed to an invention not patentably distinct from claim 20 of copending Application No. 11/667,633. Specifically, both the copending application and the instant application claim the same fiber compositions. The ranges of copolymers A and B are either encompass each other or significantly overlap and overlapping ranges have been held to establish prima facie obviousness. Since the composition of the copending application and the presently claimed composition are the same, one of ordinary skill in the art would expect that the polymers of the '604 application are "incompatible".

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). The copending Application No. 11/667,633, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the

conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

4. Addition of a new claim 19 is acknowledged.

5. All rejections are withdrawn in light of Applicant's amendments filed on 03/19/09. The new grounds of rejection set forth below are necessitated by Applicant's amendment filed on 03/19/09. In particular, claim 1 was amended to include a limitation of the content of sulfonic acid being present in the copolymer (B) of being 10-40%wt. Thus, this limitation was not previously presented and was taken from instant specification (see p.8, lines 21-24 of the instant specification). Specifically, new grounds of rejection of claims 1-2, 4-7, 11, 13-14, 16-19 under 35 U.S.C. 102/103 over **Yamamoto et al** (US 4,101,621) are set forth in paragraphs 4-7 below. A new grounds of rejection of claims 3, 9, 10, 12, 15 under 35 U.S.C. 103 over **Yamamoto et al** (US 4,101,621) in view of

Ono et al and **Yamamoto et al** (US 4,101,621) in view of **Ueno et al** are set forth in paragraphs 14-25 below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 4-7, 11, 13-14, 16-19 are rejected under 35 U.S.C. 103(a) as obvious over **Yamamoto et al** (US 4,101,621) in view of **Couchoud** (US 3,963,790) and **Miessen et al** (US 4,014,958).

7. Yamamoto et al discloses an acrylic fiber comprising a mixture of:

A) a copolymer of:

30-80%wt of acrylonitrile;

20-70%wt of vinyl chloride;

0-15%wt of other unsaturated monomer comprising allylsulfonic acid (col. 2, lines 50-65; col. 4, lines 40-54);

B) 0.1-10%wt of a copolymer (called blendmer) comprising:

10-85%wt of acrylonitrile;

10-50%wt of vinyl chloride;

5-40%wt of an anionic polymer comprising sulfonic acid monomers (col. 4, lines 8-20).

8. The blendmer component (B) may be added after the polymerization of (A) causing a phase separation of the polymers (col. 3, lines 65-68), i.e. the polymers are incompatible.

In addition, **Couchoud** (US 3,963,790) discloses similar blend of two acrylonitrile copolymers and specifies the components of that composition as being incompatible (see col. 3, lines 49-50 in **Couchoud**). Since the two copolymers are incompatible, when dissolved in a common solvent, they produce two phases (col. 3, lines 1-5 in **Couchoud**). Spinning of the solution of two incompatible polymers provides phase separation into particles having a size of 1-3 microns (as to instant claim 4, see col. 3, lines 7-12 in **Couchoud**).

It is also known in the art that the copolymers having higher sulphur contents are incompatible with acrylonitrile/vinyl chloride copolymers (see **Miessen et al** US 4,014,958).

9. Though **Yamamoto et al** does not provide relative saturation value of the fiber and dyeing shrinkage or shrinkage after being dyed, nevertheless, since the composition of **Yamamoto et al** is the identical to the composition claimed in the instant invention, therefore, it would have been obvious to a one skilled in the art at the time of the

invention was made that relative saturation value and shrinkage will fall within the same ranges as claimed in the instant invention. "Products of identical chemical composition can not have mutually exclusive properties" (See MPEP 2112.01).

10. Claims 1-7, 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ono et al** (JP 02182916) in view of **Couchoud** (US 3,963,790).

11. Ono et al discloses a dyeable acrylic composite fiber obtained by jointing components A and B, wherein the component B comprises a **blend** of:

I) 60-95pbw of the copolymer (I) comprising:

- 1) more than 40%wt. of acrylonitrile;
- 2) 20-60%wt. halogen-containing monomer
- 3) sulphonic acid-containing monomer;

with a copolymer (II)

II) a copolymer (II) comprising:

- 1) 30-75%wt. of acrylonitrile;
- 2) 20-70%wt of vinylic monomer comprising acrylic esters (page 8);
- 3) 0-10%wt of sulphonic acid-containing monomer (Abstract).

12. Since the content of the sulphonic acid monomer in the copolymer (II) (0-10%wt) of **Ono et al** is overlapping the content of the sulfonic acid-monomer of the copolymer (B)

(10-40%wt) claimed in the instant invention, this overlapping have been held to establish prima facie obviousness.

13. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See *In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)

14. Though the components (I) and (II) are not specified as incompatible with each other, since the composition of **Ono et al** is identical to the composition of the instant invention, incompatibility is assumed to be an intrinsically present in the composition of **Ono et al**. "Products of identical chemical composition can not have mutually exclusive properties" (See MPEP 2112.01).

In addition, **Couchoud** in discloses similar blend of two acrylonitrile copolymers and specifies the components of that composition as being incompatible (see col. 3, lines 49-50). Since the two copolymers are incompatible, when dissolved in a common solvent, they produce two phases (col. 3, lines 1-5). Spinning of the solution of two incompatible polymers provides phase separation into particles having a size of 1-3 microns (see col. 3, lines 7-12 in **Couchoud**).

15. As to instant claims 4-7, 9-18, although neither **Ono et al** nor **Couchoud** provide a relative saturation value of the fiber and shrinkage during dyeing and after being dyed, nevertheless, since the composition of **Ono et al** is identical to the composition claimed in the instant invention, relative saturation value and shrinkage of the fiber of **Ono et al** will obviously fall within the same ranges as those properties of the fiber claimed in the instant invention.

16. Claims 3, 9, 10, 12, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamamoto et al** (US 4,101,621) in view of **Couchoud** (US 3,963,790) and **Miessen et al** (US 4,014,958), as applied to claim 1 above, in further view of **Ono et al** (JP 02182916).

17. The discussion with respect to **Yamamoto et al** (US 4,101,621) in view of **Couchoud** (US 3,963,790) and **Miessen et al** (US 4,014,958), as set forth in paragraphs 6-9 above is incorporated here by reference.

18. Yamamoto et al in view of **Couchoud** and **Miessen et al** fail to teach the other monomer in the copolymer (B) being acrylic ester.

19. Ono et al discloses a dyeable acrylic composite fiber obtained by joining components A and B, wherein the component B comprises a **blend** of:

I) 60-95pbw of the copolymer (I) comprising:

- 1) more than 40%wt. of acrylonitrile;
- 2) 20-60%wt. halogen-containing monomer
- 3) sulphonic acid-containing monomer;

with a copolymer (II)

II) a copolymer (II) comprising:

- 1) 30-75%wt. of acrylonitrile;
- 2) 20-70%wt of vinylic monomer comprising acrylic esters (page 8);
- 3) 0-10%wt of sulphonic acid-containing monomer (Abstract).

20. Since

1) **Yamamoto et al** discloses an acrylic fiber comprising a mixture of a copolymer (A) and a copolymer (B) comprising 5-40%wt of sulfonic acid monomers, but fails to teach the copolymer (B) comprising an acrylic ester comonomer;

2) **Ono et al** discloses a dyeable acrylic composite fiber comprising a blend of a copolymer (I) and a copolymer (II), wherein the copolymer (II) comprises a copolymer of an acrylonitrile, acrylic ester and sulfonic acid monomer, similar to the composition of **Yamamoto et al**, wherein the fiber of **Ono et al** comprises good flame-proofing good bulking and dyeing properties, therefore,

it would have been obvious to a one skilled in the art at the time of the invention was made to include an acrylic ester comonomer in the copolymer (B) of **Yamamoto et al** to

provide the fiber of **Yamamoto et al** with good flame-proofing good bulking and dyeing properties.

21. Though neither **Yamamoto et al** nor **Ono et al** provide a relative saturation value of the fiber and shrinkage during dyeing and after being dyed, nevertheless, since the composition of **Yamamoto et al** in view of **Ono et al** is identical to the composition claimed in the instant invention, relative saturation value and shrinkage of the fiber of **Yamamoto et al** in view of **Ono et al** will obviously fall within the same ranges as those properties of the fiber claimed in the instant invention.

22. Claims 3, 9, 10, 12, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamamoto et al** (US 4,101,621) in view of **Couchoud** (US 3,963,790) and **Miessen et al** (US 4,014,958), as applied to claim 1 above, in further view of **Ueno et al** in JP 06158422.

23. The discussion with respect to **Yamamoto et al** (US 4,101,621) in view of **Couchoud** (US 3,963,790) and **Miessen et al** (US 4,014,958), as set forth in paragraphs 6-9 above is incorporated here by reference.

24. **Yamamoto et al** in view of **Couchoud** and **Miessen et al** fails to teach the other monomer in the copolymer (B) being acrylic ester.

25. Ueno et al discloses a high-shrinkage acrylic fiber produced from a polymer composition comprising 60-95 parts by wt of a polymer (I) and 5-40%wt of a polymer (II), wherein the polymer (I) comprises:

- 1) equal or more than 40%wt of acrylonitrile;
- 2) 20-54%wt of halogen-containing monomer;
- 3) 0.5-6%wt of sulfonic acid-containing monomer;

the polymer (II) comprises:

- 1) 20-60%wt of acrylonitrile;
- 2) 35-78%wt of (meth)acrylic acid ester;
- 3) 2-5%wt of sulfonic acid-containing monomer (Abstract).

26. Since

1) **Yamamoto et al** discloses an acrylic fiber comprising a mixture of a copolymer (A) and a copolymer (B) comprising 5-40%wt of sulfonic acid monomers, but fails to teach the copolymer (B) comprising an acrylic ester comonomer;

2) **Ueno et al** discloses a dyeable acrylic composite fiber comprising a blend of a copolymer (I) and a copolymer (II), wherein the copolymer (II) comprises a copolymer of an acrylonitrile, acrylic ester and sulfonic acid monomer, similar to the composition of **Yamamoto et al**, wherein the fiber of **Ueno et al** comprises high shrinking properties, therefore,

it would have been obvious to a one skilled in the art at the time of the invention was made to include an acrylic ester comonomer of **Ueno et al** in the copolymer (B) of

Yamamoto et al to provide the fiber of **Yamamoto et al** with high shrinking properties as well.

27. Though neither **Yamamoto et al** nor **Ueno et al** provide a relative saturation value of the fiber and shrinkage during dyeing and after being dyed, nevertheless, since the composition of **Yamamoto et al** in view of **Ueno et al** is identical to the composition claimed in the instant invention, relative saturation value and shrinkage of the fiber of **Yamamoto et al** in view of **Ueno et al** will obviously fall within the same ranges as those properties of the fiber claimed in the instant invention.

28. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamamoto et al** (US 4,101,621) in view of **Couchoud** (US 3,963,790) and **Miessen et al** (US 4,014,958), further in view of **Sudo et al** (US 2002/0122937).

29. The discussion with respect to **Yamamoto et al** (US 4,101,621) in view of **Couchoud** (US 3,963,790) and **Miessen et al** (US 4,014,958), as set forth in paragraphs 6-9 above is incorporated here by reference.

30. **Yamamoto et al** in view of **Couchoud** and **Miessen et al** fail to teach a process for producing acrylic fibers comprising carrying out relaxation treatment at 1-20%.

31. **Sudo et al** discloses a process for producing shrinkable fiber by spinning a copolymer of acrylonitrile and copolymerizable monomers comprising a halogen-containing vinyl monomer, acrylic esters, sulfonic acid-containing monomers, followed by dry treatment (Abstract, [0007]). During the heat treatment, 5-15% relaxation is carried out ([0011]).

32. Since 1) both **Yamamoto et al** and **Sudo et al** disclose acrylonitrile copolymer fibers, produced by spinning and further heat treatment of the fiber;

2) **Sudo et al** specifies that by regulating temperature and relaxation during heat treatment, shrinkage of the fiber may be controlled; and to avoid random shrinkage, heat treatment of the acrylonitrile copolymer fiber should be carried out with 5-15% relaxation (see [0011] in Sudo et al);

therefore it would be obvious to one skilled in the art at the time of the invention has been made to use the process conditions of **Sudo et al** to produce fiber of **Yamamoto et al**, so that fiber with controlled shrinkage could be produced.

Response to Arguments

33. Applicant's arguments filed on 03/19/09 have been fully considered.

34. Rejection of claims 1-7, 9-18 under 35 U.S.C. 102(b) over **Ono et al** is withdrawn in light of Applicant's amendments filed on 03/19/09. A new grounds of rejection of claims 1-7, 9-18 under 35 U.S.C. 103(a) over **Ono et al** in view of **Couchoud** are set forth in paragraphs 8-13 above. Applicant argues that **Ono et al** discloses a polymer (A)

and a polymer (B) as being jointed but not mixed. Examiner disagrees. The copolymer (B) is a blend of a polymer (I), which is identical to a polymer (A), and a polymer (II). The composition of the blend (B) (i.e. (I)+(II)) is identical to the composition claimed in the instant invention with overlapping ranges of the sulfonic acid monomer, therefore the claimed properties will intrinsically fall within the same ranges as claimed in the instant invention.

35. Rejection of claims 1-7, 9-18 under 35 U.S.C. 102(b) over **Ueno et al** is withdrawn in light of Applicant's amendments filed on 03/19/09.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina Krylova whose telephone number is (571)270-7349. The examiner can normally be reached on Monday-Friday 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Irina Krylova/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796